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A PREHISTORIC WIND-INSTRUMENT FROM PECOS, NEW MEXICO

By CHARLES PEABODY

IN July, 1916, my daughter Caryl and I had the pleasure of a two-weeks' visit to the Phillips Academy, Andover, excavations at Pecos, New Mexico, conducted by Dr. A. V. Kidder of Cambridge. It is by his permission that I have had the chance of experimenting with and describing the little instrument in question.

During our visit, Dr. Kidder's assistant, Mr. C. E. Guthe, was engaged in clearing the northwestern part of the mesa outside of the north building of the Pueblo, but inside the "peribolos" wall; here were many burials of early prehistoric date; with skeleton No. 655, at a depth of about one meter lay a small bone instrument; its archaeological date is "Agua Fria" or "Frijolito," *i. e.*, in the second or third of the six prehistoric strata, counting upward, into which Mr. Kidder divides the successive deposits.

The specimen (fig. 1) is made from the wing-bone of a bird



FIG. 1.

about the size of a turkey, and has been cut squarely off at both ends, rubbed and smoothed on the exterior, and pierced by four holes.

Of these, one larger hole is near the larger or upper end and the three smaller ones further down the tube; the interior is not very smooth, but this, strangely enough, seems to interfere little with its virtues as an instrument. Near the lower end are a few transverse scratches, as if the maker had tried to cut the bone higher up.

Both ends are open and there is no trace of gum, bitumen or resin from which the presence of a stopper or of a diaphragm may be inferred.

The following measurements are given for comparison with those taken on my own flute (made in Paris about 1890):

	Pecos M.	Paris M.
Length over all.....	.185	.710
Upper end to first finger-hole.....	.105	.300
Upper end to upper edge of mouth-hole.....	.037	.070
Length of mouth-hole.....	.008	.012
Width of mouth-hole.....	.006	.010
Diameter of lower end.....	.010	.016

It will be seen that in the modern flute the mouth-hole is proportionally nearer the upper end; the finger-holes are further down the tube if the modern flute is imagined as cut off below the upper three finger keys (below G-natural).

The instrument, blown into or upon as found, will produce a certain number of more or less interrelated notes, some of them excessively shrill; only with the upper end closed, however, have I been able to play it as a musical instrument. I inserted about two millimeters' thickness of modelling clay and closed the upper end tight and then used the tube as an ordinary flute.

Beginning with all the holes covered and raising the fingers one by one, we obtain: C sharp (fig. 2), D sharp, E sharp, the open tube gives, F sharp, and easy harmonics give G sharp and A natural; half-stopping the holes will produce D natural and E natural; but I have not yet succeeded in making it play G natural. Its range therefore is a minor sixth, omitting the diminished fifth. If the flute is well played its tone is singularly sweet; it is somewhat different from that produced on modern piccoli of wood or metal.

All this is true on the assumption that it is a flute; now it is well to keep in mind the four classes of American aboriginal wind-instruments that have all been called flutes and of which only one should be so called.

- (A) The oboe class played perpendicularly with a vibrating reed;
- (B) The flageolet class, played perpendicularly, with no reed but with a vent-hole which catches the breath on its outer edge and gives a whistling sound;
- (C) The "key-whistle" class, played perpendicularly, with no reed, but where the outer edge of the truncated tube-end catches the breath and makes the sound, as when one whistles in a key;

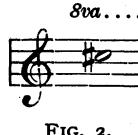


FIG. 2.

(D) The flute class, played horizontally, with the breath projected into a lateral mouth-piece, the so-called *flauto traverso*.

It is as yet to be determined in which class the Pecos object belongs; in the hope of clearing this up the collections at Andover and at the Peabody Museum of Harvard University were examined and the courtesy of Miss Frances Morris and of Mr. E. H. Hawley at the Metropolitan Museum of Art, New York and the National Museum at Washington, respectively, opened cases and spread out material.

No exact counterpart of the instrument was found in these collections, but on discussion with Mr. N. C. Nelson of the American Museum of Natural History, New York, some forty or fifty similar instruments were somewhat unexpectedly shown me. These are all from Pueblo explorations, mostly in the Rio Grande Valley south of Santa Fe.

Dr. E. H. Hewett, Director of the School of Research, Santa Fe, also told me that he had collected a fair number on the Pajaritan Plateau.

Geographically and archaeologically, the type seems to be highly localized.

As to the instrument itself, we are no nearer a solution. Two specimens in the National Museum show some analogy; No. 15825, marked "Rio Grande do Sul," and No. 4346, from British Guiana; in each of these the upper end is occupied by a stopping that has been perforated and each carries three finger-holes. An instrument resembling the latter is in the Academy of Natural Sciences, Philadelphia.¹ These three were of course played perpendicularly, as flageolets.

In the Metropolitan Museum there is a true flute of wood, possibly Apache; the catalogue in referring to this says guardedly that side-blown flutes in America are very rare and that they suggest outside influences.² All this goes to support a presumption that the Pecos instrument is a flageolet.

On the contrary the stoppings and the diaphragm are larger,

¹ Thomas Wilson, *Report, U. S. National Museum*, 1896, p. 650.

² Frances Morris, *Catalogue of the Brown Collection of Musical Instruments*, p. 127.

more important and further down the tube in flageolets than in flutes and it is strange that no trace of gum, resin, or bitumen was observed by Mr. Nelson nor myself during our close study of the American Museum specimens; this fact with the absence of such traces in our specimen leaves open a chance that it is after all a flute.¹

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¹ Mr. Oric Bates, Curator of African Ethnology in the Peabody Museum tells me that he observed a man of the South Mediterranean stock on the Siwa Oasis playing an exactly similar instrument as a flute.